

REMARKS/ARGUMENTS

Claims 1, 2, 4, 5, 9-18 and 42-61 remain in this application. Claims 3, 6-8 and 27 have been withdrawn as a result of an earlier restriction requirement. Claims 19-26 and 28-41 have been previously cancelled.

Applicant acknowledges the draftperson's acceptance of the originally filed drawings.

The numbered paragraphs below correspond to those in the official action.

§ 103 REJECTIONS

5. Claims 1, 2, 4-5, 9-16, 18, 42-50, 52, 54, 56, 58, and 59 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. 6,699,719 (*Yamazaki*) in view of U.S. Publication No. US-2003-0124572 (*Umek*). The rejection is respectfully traversed.

Yamazaki does not mention membranes deposited on an amine presenting molecule. Additionally or alternatively, *Yamazaki* does not mention a toxin identification and detection method having a dried array of biological lipid membranes, where the membranes comprise a mixture of a host lipid and a doped lipid as recited in instant independent claims 1, 42, 49, and 57. Instead, *Yamazaki* mentions that each bilayer compatible surface region (24) includes an aqueous film (32), a bilayer expanse (30), and covered by a bulk aqueous phase (34) (col. 7, lines 41-49). Thus, *Yamazaki* teaches away from the recited claims, specifically, having a dried array of lipid membranes.

Umek mentions (para 0048) fixing membranes with cross-linking between membrane components, or between membrane components and a chemical moiety on an electrode surface, such as with a silane (para 0073), or blocking agent such as a polyamine (para 0075) to control non-specific binding. However, *Umek* does not mention that the membranes comprise a mixture of a host lipid and a doped lipid, nor a

method having a dried array of lipid membranes associated with a surface of the substrate.

Applicant respectfully submits that the Examiner's combination of *Yamazaki* with *Umek*, at least for the above reasons, fails to cure the deficiencies of *Yamazaki*. Accordingly the rejection under 35 U.S.C. 103(a) should be withdrawn.

18. Claim 17 was rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over *Yamazaki* in view of *Umek*, and further in view of U.S. Patent No. 5,004,543 (*Pluskal*). The rejection is respectfully traversed.

The above remarks regarding *Yamazaki* and *Umek* are incorporated here by reference.

Applicant respectfully submits that the Examiner's combination of *Yamazaki* in view of *Umek* and further in view of *Pluskal* fails to cure the deficiencies of *Yamazaki* and *Umek* as applied to Claim 17.

Pluskal relates to a hydrophobic material having a crosslinked, cationic charge-modifying coating such that the majority of the ion exchange capacity of the material is provided by fixed formal positive charge groups. *Pluskal* does not describe any biological membrane deposited to a coating of amine-presenting molecules.

Specifically, *Pluskal* teaches a charge-modified, hydrophobic microporous membrane that has ionic and hydrophobic properties. The microporous membranes are polymer sheets illustrated in, for example, Example 1A at col. 7, lines 1-20, such as Immobilon P and Durapore polyvinylidene fluorides, and having cationic polymer coatings of Hercules R4308 (a polyamidopolyamine epichlorhydrin resin). *Pluskal*'s microporous membrane is not a nano- or micro-porous substrate as recited in claim 17. The porous substrate of claim 17 is situated beneath the array of lipid membranes recited in claim 1. Accordingly, *Pluskal* does not cure the deficiencies of *Yamazaki* and *Umek*, and as particularly as set forth in independent claim 1 and dependent claim 17.

Applicant also respectfully submits that the Office Action has failed to establish any specific motivation to combine *Yamazaki*, *Umek*, and *Pluskal*.

Because *Yamazaki*, *Umek*, and *Pluskal*, either individually or in any combination, fail to disclose or suggest the elements of claim 17, Applicants respectfully submit that these references do not render claim 17 obvious. Contrary to the examiner's conclusion, it would not have been obvious to have *Pluskal*'s microporous membrane as the support in the method of *Yamazaki* and *Umek*. Even if one were to include *Pluskal*'s membrane into a hypothetical combination of the methods of *Yamazaki* and *Umek* as suggested by the examiner, it is far from certain (or even unlikely for the at least some of the reasons articulated by applicant above), that one would arrive at the method recited in claim 17, having nano- or micro-porous substrate as mentioned on page 9 (para. 0035) of the present specification.

19. Claims 51, 53, 55, and 59 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over *Yamazaki* in view of *Umek* and further in view of U.S. Patent No. 4,933,285 (*Patton*). The rejection is respectfully traversed.

The above remarks regarding *Yamazaki* and *Umek* are again incorporated here by reference.

The examiner applied *Patton* for providing 'substrates coatings of γ -aminopropylsilane (column 4, lines 15-20)' to 'produce solid phases that serve to anchor reaction products to a solid phase, while permitting the unreacted reagents to be removed (column 3, lines 35-42).'

Applicant respectfully submits that *Yamazaki*, *Umek*, and *Patton*, either alone or in any combination, fail to render claims 51, 53, 55, and 59 obvious. Claims 51, 53, and 55 depend from amended claims 1, 42 and 49, respectively. The methods recited in claims 1, 42, and 49 employ a biological lipid membrane that comprises a mixture of a host lipid and a doped lipid. The resulting dried array having an amine presenting molecule as recited in dependent claims 51, 53, 55, and 59 are not believed to be rendered obvious by general teaching of a silane coating as a solid phase anchor for at least the reasons mentioned for the above 103 rejections and because the recited dried arrays of the present method retain some lateral fluidity, see for example, page 12, para

0041 of the specification. None of the cited references describes or suggests the combination of recited features. Accordingly, *Yamazaki*, *Umek*, and *Patton*, taken alone or in any combination, do not teach or suggest each and every element of claims 51, 53, 55, and 59. Therefore, Applicants respectfully submit that *Yamazaki*, *Umek*, and *Patton* do not render obvious claims 51, 53, 55, and 59.

Moreover, Applicant respectfully submits that the Office Action has failed to establish a specific motivation to combine *Yamazaki*, *Umek*, and *Patton*. Based on at least the above reasons, Applicant respectfully submits that the Examiner has failed to establish *prima facie* obviousness of claims 51, 53, 55, and 59. Applicant respectfully requests that the Examiner reconsider and withdraw all of the above-mentioned obviousness rejections.

RESPONSE TO ARGUMENTS

The Examiner stated that Applicant's arguments with respect to claims 1, 2, 4, 5, 9-18, and 42-61 were moot in view of the new grounds of rejection. Applicant's remarks presented above and previous remarks of record are believed to overcome the new grounds of rejection.

CONCLUSION

Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that a one month extension of time is necessary to make this response timely, due on Saturday, March 29, 2008 and filed Monday, March 31, 2008. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to John L. Haack at (607) 974-3673.

DATE: March 31, 2008

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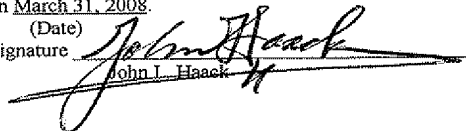
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